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Societal Change and Values in Arab Communities in Israel: Intergenerational and Rural–Urban Comparisons

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Abstract

This study tested and extended Greenfield's (2009) theory of social change and human development to adolescent development in Arab communities in Israel undergoing rapid social change. The theory views sociodemographic changes – such as contact with an ethnically diverse urban setting and spread of technology — as driving changes in cultural values. In one research design we compared three generations, high school girls, their mothers, and their grandmothers in their responses to value—assessment scenarios. In a second research design, we compared girls going to high school in an ethnically diverse city with girls going to school in a village. As predicted by the theory, a t—test and analysis of variance revealed that both urban life and membership in the youngest generation were significantly related to more individualistic and gender—egalitarian values. Regression analysis and a bootstrapping mediation analysis showed that the mechanism of change in both cases was possession of mobile technologies.

Keywords: Values, Culture, Societal Change, Muslim, Arab, Israel, Rural, Urban, Adolescent Development, Gender, Sexuality, Intergenerational Change

Societal Change and Values in Arab Communities in Israel: Intergenerational and Rural–Urban Comparisons

One of the most important contributions cross–cultural research has made to the field of psychology has been to show variations in cultural values around the world and their influence on human psychology. Values operate as generalized assumptions of good and bad that shape individuals' beliefs, attitudes, behaviors, evaluations, and justifications across a variety of situations (Rokeach, 1973; Schwartz, 1992). Recent theoretical and empirical work has added a critical dimension to the study of cultural values: the impact of sociodemographic change (e.g., Greenfield, 2009; Kağitçibaşi, 2007; Keller & Lamm, 2005). This research often comes from a developmental perspective, showing that changes such as increasing urbanization and higher levels of formal schooling correspond to shifting values in child rearing beliefs and practices (Keller & Lamm, 2005; Greenfield, Maynard, & Childs, 2003; Raeff, Greenfield, & Quiroz, 2000), family negotiations of adolescent autonomy (Kağitçibaşi, 2005), and identity formation during the transition to adulthood (Manago, 2012). The current study advances this work, investigating how various forms of sociodemographic change among Arab–Muslim grandmothers, mothers, and adolescent girls in Israel might correspond to shifts in cultural values guiding developmental tasks during adolescence and the transition to adulthood.

A Theory of Social Change and Human Development

Greenfield's (2009) theory of social change and human development posits that sociodemographic change drives changes in development and psychological values. *Gemeinschaft* and *Gesellschaft*, concepts developed by sociologist Ferdinand Tönnies (1887/1957), are used in the theory to describe a common direction of sociodemographic change in the world: a shift from tight–knit, homogenous, rural communities with low levels of formal education and technology (*Gemeinschaft*) to large, diverse, and commercial urban centers with higher levels of formal education and technology (*Gesellschaft*). The terms Gemeinschaft and Gesellschaft designate typologies that anchor a host of sociodemographic continua including economy, education, technology, and social relations.

Greenfield predicts that movement down any of these sociodemographic continua toward the Gesellschaft typology will drive development and values toward increasing individual independence and away from family interdependence.

By positioning sociodemographic factors at the causal level of cultural values and development, the theory resolves issues in cross–cultural research that occur when cultural values are assumed to be static. The theory explains why variations in values within countries are just as significant as variations between countries (Fischer & Schwartz, 2011). It also explains why studies that compare college students in urban areas in traditionally individualistic cultures, such as the United States, with college students in urban areas in traditionally collectivistic cultures, such as Japan, fail to find differences along the dimension of individualism and collectivism (Oyserman, Coon, & Kemmelmeir, 2002; Takano & Osaka, 1999). Greenfield's theoretical framework is essential for cross–cultural research under contemporary circumstances where globalization and the spread of communication technologies unsettle nationalistic boundaries as proxies for cultural boundaries. The theory is also particularly useful for understanding intergenerational value change in families where each generation is growing up under different sociodemographic conditions. Indeed, the movement from more Gemeinschaft to more Gesellschaft environments constitutes a global trend occurring across generations that includes increasing urbanization (Greenfield, 2013; Larson, Wilson, Brown, Furstenberg, & Verma, 2002; Call, Riedel, Heine, McCloyd, Peterson, Kipke, 2002), movement from subsistence to commercial–industrial economies (Greenfield, 2004), and increasing formal education (Greenfield et al., 2003).

A number of studies in various countries of the world support this theory of social change and human development, showing that economic development (Mexico: Greenfield, 2004), formal education (India: Seymour, 1999; Mexico: Manago, 2014), and urbanization (China: Fuligni & Zhang, 2004; Lahat, Helwig, Yang, Tan, & Liu, 2009; U.S., U.K.: Greenfield, 2013) are associated with increasing emphasis on personal choice and autonomy

across generations. Correlatively, a decrease in adherence to parental authority and family obligation is emerging in places with longstanding values for family interdependence.

Many of the shifts in values and behavior are tied to changing gender roles and changes in the structuring of romantic relations. Manago (2012; 2014) found that the expansion of formal education for girls into the adolescent years, as well as moving from village to city, brought more egalitarian gender roles and greater freedom in seeking a romantic partner for indigenous Maya young women in Chiapas, Mexico compared to their mothers and grandmothers. The social dilemmas that she used in this study are the same materials that we adapted to study our samples of Arabs in Israel, which are described in detail in the Method section.

Most relevant to the adolescent period of development is the global augmentation of communication technologies (e.g., Ling & Hadden, 2008). Around the world, diminished attachment to parents, disruption of family life, and increased importance of peer relations accompanies computer and Internet use (Israel: Mesch, 2003; U.S: Richards, McGee, Williams, Welch, & Hancox, 2010; Rosen, Cheever, & Carrier, 2008; Singapore: Lee & Kuo, 2006), as well as other mobile media like the cell phone (Norway: Ling & Yttri, 2002).

Measuring Cultural Values

The approach we take in this study seeks to resolve some methodological issues involved in measuring values across different cultures and languages. A fundamental tension in measurement is whether items that have been developed in one culture translate to other cultures, and therefore, whether scores can be accurately compared across cultures (Greenfield, 1997). Another fundamental tension in cross–cultural psychology, in general, is distinguishing between cultural differences and human universals. To this end, we adopt and adapt a culturally sensitive approach that used short stories in the form of social dilemmas to measure value change in conjunction with the transition from a more *Gemeinschaft* to a more *Gesellschaft* environment in an indigenous Maya community in Mexico (Manago, 2014).

The stories capture universal adolescent developmental tasks that are adapted to particular cultural norms, practices, and beliefs. The primary tasks during adolescence revolve around identity development, gender role development, and sexual development (Schlegel & Barry, 1991). In becoming a responsible adult member of society, adolescents negotiate transitions into adult work and family gender roles, which include orienting to relationships in relatively larger social spheres and finding a suitable partner for family formation. The original measurement instrument developed by Manago (2014) taps into these universal tasks with eight short stories about gender roles, gender relations, partnering, transition into adult work roles, and peer relationships. Two of the co-authors from Arab-Israeli communities adapted the original narratives so that they made sense within the local context. These short stories are a useful way to measure value priorities across cultural contexts because stories represent a universal form of cognition (Bruner, 1990) and are amenable to cultural modifications so as to resonate with local meanings.

Current Study

The Arab community in transition in Israel. The Arab community in Israel has undergone significant social change since the establishment of the state in 1948. At that time, a bit more than half of the inhabitants in what became the borders of the state were Arabs. Soon after, and continuing until the present day, about 75% of the population is Jewish, and about 21% is Arab. Consequently, one motor for social change in Arab communities is the fact that they are within Jewish Israel, a highly developed Gesellschaft society, one of the characteristics of which is a heterogeneous population comprised of multiple ethnic and cultural groups.

Following the radical population shift to a majority Jewish population, there have been notable socio-demographic changes over the course of the three generations we are investigating in the current study. What has historically been a largely rural population is increasingly urban. Whereas in the early 1980's, half of the Arab population lived in localities numbering less than 10,000 people, in 2008, only about 30% do so.[1]

[1] All of the statistical information regarding the Arab and Jewish populations in Israel and socio-demographic characteristics are based on documents available on the website of the Israel's Central Bureau of Statistics, http://www1.cbs.gov.il/reader/cw_usr_view_Folder?ID=141, some of which is summarized by

Along with population shifts, there have also been changes in socio–demographic characteristics of Arab families, such as education, marriage, and children. From 1990 to 2010, post secondary education rose 19% among Arab women and 11% among Arab men. In roughly this same time period, there has been a rise in the age of marriage and a decrease in family size. In the 1980's the average age of marriage was about 20 years old for women and 24 years old for men, and the average family size was about 4.4 children. In 2010, the average age of marriage was about 22 years old for women, and about 27 years old for men, and the average family size decreased to 3.5 children.

Sociodemographic change is also reflected in the ownership of goods and the use of technology. From 1986 to 2000, there was an increase among Arab families in ownership of goods such as stereo systems (11% to 22%), VCRs (11% to 38%), at least one phone line (33% to 85%), and at least one car (9% to 46%). The use of communication technologies has risen especially in the last decade. By the year 2000, 21% of Arab families had a computer in the home; that number rose to 63% in 2010. In that same time, Internet subscriptions rose 37%.

This statistical information shows that in the span of time since mothers of adolescents were themselves adolescents until present day, there have been great shifts in the socio–demographic ecologies of the Arab community. Of particular relevance to the current research, these shifts include greater urbanization; increased levels of education; expanded opportunities for women outside the home (along with decreased demands in child–rearing); and greater access to technology, as well as access to the wider world that technology engenders. In considering social change in the Arab community in Israel, it is important to remember that the majority population within the wider culture likely has an influence on social change in the Arab community, as younger people have greater access to an urbanized, technological, diverse world around them (Gavison & Abu–Ria, 1999).

While the village environment has moved in the direction of an urban environment, the city remains a more *Gesellschaft* environment, to a great extent because of more Jewish

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the Myers–JDC–Brookdale Institute and can be found on their website, http://brookdale.jdc.org.il/?CategoryID=182

Israeli influence. For example, Haifa has two major universities and a number of colleges. There are Jewish Israeli shops, as well as shops that are run by multinational corporations. Unlike the village, Haifa has a multiethnic population consisting of Jews and Arabs.

Design and hypotheses. Because there has been a great deal of socio–demographic change in the Arab community over the course of several generations, we predict that, in line with Greenfield's (2009) theory, those growing up in different socio–demographic ecologies would develop different values. This leads to our intergenerational comparison, in which we assess the values of triads of adolescents, mothers, and grandmothers. We expect that this three–generational comparison will embody the effects of the gradually expanding educational opportunities for Arab women, as well as the suddenly expanding use of personal communication technologies.

Our research design also includes the rural–urban dimension: we compare adolescent values in a rural village with those in an urban city. The technological dimension is also important, and we assess it by surveying technology access and use. We expect that urban residence, higher levels of formal education, and the spread of computer and cell phone technologies will lead to corresponding shifts in values toward more egalitarian gender roles and more independent cross–sex relations.

It is important to note that socio–demographic shifts do not suddenly switch values and behavior; community traditions may still have a strong pull even in *Gesellschaft* societies. The process of change often involves negotiating compromises between the old and the new. The process of change is not all or none; yet it is detectable. Given this, we are testing the theory that changes in socio–demographic characteristics will indeed lead to predictable shifts in values.

Hypothesis 1. Our first hypothesis was that urban adolescents would tend to endorse more individualistic and gender–egalitarian values than would rural adolescents. In order to test this, we compare a group of rural Arab Muslim adolescent girls in a

culturally homogenous, all Muslim village in the Haifa district with a group of urban Arab Muslim adolescents living in the city of Haifa.

Hypothesis 2. Our second hypothesis was that, with changes in socio–demographic characteristics of the community and the surrounding area across time, in particular with the introduction of communication technology into the rural village ecology, adolescent girls in the village would endorse more individualistic and gender–egalitarian values than their mothers, who, in turn, would endorse more individualistic and gender–egalitarian values than their grandmothers in the sample.

Hypothesis 3. Our third hypothesis was that the intergenerational differences could be explained by sociodemographic changes that the families had experienced over the generations. We were particularly interested in which changes in socio–demographic ecologies may have relatively greater impact in producing change. We expected that the explosion of computer ownership and Internet access in the Arab community, as well as in the wider world, would play a role of particular importance in the move toward —*Gesellschaft*–adapted values. Thus, our more specific hypothesis was that access to communication technologies would mediate the hypothesized differences found between the urban and rural groups of adolescents and the hypothesized intergenerational differences. That is, if there is variation between the groups as expected, access to communication technologies may well best explain this variation. We tested this hypothesis through mediation models.

Method

Participants

Twenty adolescent girls (age $M = 16.68$, $SD = 0.78$) from an Arab Muslim village in northern Israel participated in the research along with their 20 mothers (age $M = 46.60$, $SD = 6.02$, range 36–60), 20 of their maternal grandmothers (age $M = 66.95$, $SD = 7.84$, range 52–80), and 20 similarly aged adolescent girls (age $M = 17.23$, $SD = 0.54$) from a mixed Jewish, Arab Muslim, and Arab Christian city (Haifa) from the same administrative district in northern Israel. The city of Haifa is a mixed city consisting

primarily of Jews, but includes about 10% Arabs, a bit less than half of whom are Muslims.

The urban sample was recruited at an Arab high school in Haifa through a process of snowball sampling. It is a private school that was historically Christian and is still run by a Greek Orthodox religious council. Today this Arab high school includes diverse religious groups: Muslims, Christians, and Druze; Muslims were in the majority. Individual interviews were done in a park near the school.

The village sample attended a regional high school with a homogeneous population of Arab Muslims. The region includes five villages in north central Israel, a region that is primarily Arabic. The high school girls from the village were recruited by telephone through a process of snowball sampling. They then asked their mothers and grandmothers if they would also participate. If all three were willing, they were interviewed in their homes. Each member of the family was interviewed individually in a separate room of the house or, in the case of the grandmothers, usually in a separate house. Interviews in the same house were done in immediate succession to avoid discussion between participants of different generations.

In the village, eighteen out of 20 of the mothers were homemakers; the dominant occupation of the fathers (ten out of 20) was construction. All of the grandmothers were homemakers; the dominant occupation of the grandfathers (9 out of 20) was also construction. Five of the mothers had elementary school education, 14 had high school education, and one had undergraduate education. Among the grandmothers, 13 had no formal education, one had a few years of religious education as a child, and six had elementary school education. Fifteen of the fathers had high school education with two having postsecondary studies. The other three fathers had elementary school education. Just two of the grandfathers had high school education, the highest level in that generation.

In contrast, although they were not interviewed for this study, all of the parents of the urban sample had at least high school education, with six mothers and seven fathers having postsecondary education.

The girls received the equivalent of about $12, the mothers the equivalent of about $17, and the grandmothers the equivalent of about $20 as compensation for their participation.

Materials

The adolescents responded to a socio–demographic interview (see Appendix A) that was designed to gain information regarding parents' work and education, number of siblings and their work and education, opportunity for interaction with diverse groups of people outside of their localities, household belongings, personal mobile technology, media use, contact with boys, and religious practice. The mothers and grandmothers responded to a similar interview that also included retrospective reports, where pertinent, of when they were adolescents, as well as self–reports of their work and education.

The sociodemographic variables used in the analysis were mother's education, father's education, number of siblings, non–Muslim friends, watches non–Arabic TV, has personal mobile technology, responds to five calls to prayer, girl helps her parents in the home, girl works outside home, household goods, travel outside Israel, has personal mobile technology, friends with boys on Facebook, and wears a headscarf.

Education was a six–point scale from 0 (none) to 5 (graduate school). Personal mobile technology was a four–point scale from zero (none) to three (laptop, cell phone, and Internet on phone). A score of one was given for any one of the three; a score of two was given for any two of the three. The following were all binary variables (yes or no) for each generation: Has non–Muslim friends, watches non–Arabic TV, responds to five calls to prayer, has travelled to another country, and wears a headscarf. The following were binary variables concerning adolescent girls only: girl helps her parents in the home, girl works outside home, and girl has friends with boys on Facebook.

Following the sociodemographic interview, all of the participants responded to a semi–structured interview task that presented nine dilemmas concerning conflicts around gender roles and cross–sex relationships (see Appendix B). The dilemmas were developed primarily by two of the authors, Ganayem and Igbariya, one from the same village and the

other having studied at the same urban high school as the adolescent participants in the study. Based on the model of dilemmas used in a study of Mayans in Mexico, the dilemmas were designed to present points of potential conflict in which it was assumed that some of the participants would agree with the more *Gemeinschaft* viewpoint of one character in the dilemma and some would agree with the more *Gesellschaft* viewpoint of the other character in the dilemma. Although based on a model from a different culture, the dilemmas were designed to be quite culture specific, finding points of tension particular to the village and between the rural and urban adolescent girls. We were surprised and pleased that the authors from the Arab culture felt that most of the dilemmas did not need adaptation (outside of language translation) to be relevant to the experience of social change that the Arab population in Israel had been undergoing.

The topics of the dilemmas (with the overall issue for adolescents in parentheses) included whether: (1) men needed to walk in front of women (gender status), (2) a wife needs to do the cooking as opposed to a female elder (female gender roles), (3) a husband needs to help his wife with the housework when she requests him to (male gender roles), (4) girls and boys should be allowed to talk outside of school (cross–sex relations), (5) an engaged woman could break off the arranged but consensual engagement (marriage), (6) young people should leave the village to study in the city (transition to adult work for men), (7) a woman can seek a profession rather than early marriage (transition to adult work for women), (8) a girl can regularly leave the house to hang out with girlfriends (adolescent peer relations), and (9) a girl needs to wear a head scarf after a certain age (women's religious obligations). This last dilemma was added to the eight dilemmas that had been used in an indigenous Maya community in Chiapas, Mexico.

Procedure

The interviews were conducted in Arabic by collaborators Igbariya and Ganayem. Each of the participants was interviewed individually at their homes or in the park in a single session. The interviews took between 40 and 60 minutes.

Data Analysis

As written Arabic and spoken Arabic are quite dissimilar, the interviews were transcribed into the vernacular Arabic, rather than the more literary written Arabic, before being translated into English. The English translations were used to facilitate the development of the coding with the participation of the non–Arabic speaking researchers. The Arabic transcripts were used for the final coding after the graduate students obtained inter–rater reliability on each of the dilemmas.

The dilemmas were coded for tendency toward agreement with the *Gemeinschaft* direction response, the *Gesellschaft* direction response, or a position in between. The score of 1 meant the participant had chosen the character representing a *Gemeinschaft* perspective. An example of a response coded as 1, from the dilemma (2) regarding whether a wife needs to do the cooking as opposed to a female elder, is: "I agree with the man because the wife should not neglect her husband." A score of 3 meant that the participant had chosen the character representing a *Gesellschaft* perspective. An example of the 3 score, from the cooking dilemma, is: "I agree with Sahar [the woman] because his mom is at home and she can cook; this should not prevent Sahar from work or finding a job." A score of 2 meant that participants agreed with both characters in the story and could not decide which perspective was better. An example of the 2 score from the cooking dilemma is: "I think Sahar should find a job but at the same time she has to cook and prepare food." For inter–rater reliability, two mother–tongue Arabic speaking raters coded 19 of the 80 transcripts independently and had substantial agreement on all nine dilemmas. Free–marginal Kappa scores, used when the marginal proportions are not fixed (Brennan & Prediger, 1981; von Eye, 2006), were calculated and they ranged between .76–1.00.

Table 1 shows Spearman's non–parametric rank correlations among the dilemmas. Overall, it is possible to see inter–correlation among the dilemmas. Although there is not perfect correlation among the dilemmas, every dilemma is positively correlated with at least two of the dilemmas across the samples, and all are positively correlated or marginally correlated with at least one other dilemma within each sample. In both samples, most of the non–significant correlations appeared to be in the positive direction. There were no

significant negative correlations. Based on the general sense of direction indicated in this table showing relationships among the dilemmas, a mean score was calculated representing the tendency across the dilemmas.

Statistical Analysis

An independent–sample t–test comparing the rural and urban high school girls and a one–way analysis of variance comparing the three generations in the village were carried out, using the combined mean score for all of the dilemmas as the dependent variable. In order to isolate the sociodemographic factors responsible for the differences, we followed up these analyses with regression analysis and a test for mediation.

Results

Comparing the Urban and Rural Adolescent Groups

Confirming Hypothesis 1, a significant independent samples t–test ($t(38) = 2.44$, $p = .019$, $d = .80$) indicated that the urban girls ($M = 2.43$, $SD = 0.26$) tended more toward a *Gesellschaft* orientation than did the rural girls ($M = 2.18$, $SD = 0.36$). These means indicate that, on the average, both groups of high school girls were on the *Gesellschaft* side of the scale, although the urban group significantly more so.

In order to determine if this difference might be explained by any of the socio–demographic characteristics that we measured, we used a bootstrapping mediation analysis (Preacher & Hayes, 2008). That is, we tested whether the total effect of the urban/rural group independent variable disappeared in favor of an indirect effect through the proposed mediation of various sociodemographic variables. Mediation is commonly tested using the parametric approaches of Baron and Kenny (Baron & Kenny, 1986), or Sobel (Sobel, 1982, 1986). The assumption of multivariate normality of the distribution of the total and specific indirect effects can be problematic in mediation tests without large samples (MacKinnon, Rose, Chassin, Presson, & Sherman, 2000; Preacher & Hayes, 2008). Thus, the bootstrapping method was used because as a nonparametric test, it is suitable for the low numbers of participants in the sample, and unlike parametric mediation, it can be used with multiple possible mediators to test whether an overall indirect effect exists as well as

to test for the indirect effect of each mediator variable while controlling for all other variables in the model; it also has generally been shown to be an improvement over parametric tests even with larger samples (Fritz & MacKinnon, 2007; Preacher & Hayes, 2004). With bootstrapping, the sampling distribution is approximated through resampling. The sampling distributions of total and indirect effects of multiple mediation models are generated by selecting a subsample, with replacement, of the full data set and then calculating indirect effects in the repeated subsamples. The results of this process are point estimates and percentile confidence intervals for indirect and total effects. If the confidence interval around the indirect effect does not include zero, the mediation is considered to be significant. In the present study, bootstrap percentile confidence intervals were calculated with bias—correction and 5,000 bootstrap samples as recommended by Preacher and Hayes (2008).The analysis was performed using an SPSS macros provided on Hayes's website (Hayes, 2014).

In order to test which sociodemographic variables might mediate the relationship between group (urban/rural) and the mean dilemma score, we determined which sociodemographic variables were correlated with both. Table 2 shows the variables that were found to be correlated with either group or mean dilemma score using Spearman's rank correlation, which is suitable for small samples. The regression model included group and the socio—demographic variables of "has personal mobile technology" and "friends with boys on Facebook," the only variables correlated with both group and the mean dilemma score. Collinearity statistics indicated that there was not multicollinearity among the predictor variables with the VIF for each variable < 5 and the tolerance $> .02$. Table 3 shows the correlations among all of the sociodemographic variables that are related to either group or dilemma score. Although "has personal mobile technology" and "friend with boys on Facebook" are significantly correlated, the correlation is not that strong ($r = .33$). The general pattern of significant correlations among all the variables in the table does support the assumption about the characteristics of the sociodemographic ecologies. The regression model, with group as independent variable and the sociodemographic variables as

potential mediators, was significant ($F(3,36) = 5.64$, $p = .003$), and explained 32% of the variation.

As shown in Figure 1, personal mobile technology mediates the relationship between group and mean dilemma score. There are several indications that this is the case. First, although the total effect of group on dilemma scores ($\beta = .24$, $t(36) = 2.44$, $p = .02$) – that is, group's prediction of dilemma scores without controlling for the sociodemographic variables – is significant, the direct effect of group ($\beta = .00$, $t(36) = 0.38$, $p = .99$) is not significant when adding personal mobile technology and friends with boys on Facebook. Although both could potentially be mediators, personal mobile technology is determined be the sole significant mediator because it is shown to be predicted by group ($\beta = .90$, $t(36) = 2.65$, $p = .012$) and it alone continues to significantly predict mean dilemma score ($\beta = .10$, $t(36) = 2.33$, $p = .026$) when controlling for the other sociodemographic variable and group. Friends with boys on Facebook is predicted by group ($\beta = .70$, $t(36) = 6.10$, $p = .000$) but its relationship with mean dilemma score ($\beta = .22$, $t(38) = 1.64$, $p = .11$) is no longer significant when controlling for group and personal mobile technology. This suggests the relationship between group and dilemma score is fully mediated by personal mobile technology. To ascertain if this mediation were significant, the 95% confidence interval of the indirect effects was obtained. The indirect effect (i.e., group on dilemma score through the mediator of personal mobile technology) is significant ($\beta = .09$, CI = .01–.23) as indicated by the confidence interval (CI) that does not include 0. Thus, the reason that those from the urban group have dilemma mean scores tending more toward *Gesellschaft* than do those of the rural group might be explained by greater ownership of personal mobile technology. This result confirmed Hypothesis 3 concerning sociodemographic mediation of the difference between the two groups.

Cross–generational Analysis

A significant one–way analysis of variance ($F(2,57) = 4.54$, $p = .015$, $\eta_p^2 = .14$) indicated mean differences in dilemma scores between the three generations among the rural group in the village. Bonferroni post–hoc comparisons showed that the adolescent girls

were significantly more likely ($p = .05$) to have mean scores ($M = 2.18$, $SD = 0.36$) in the *Gesellschaft* direction than did their grandmothers ($M = 1.88$, $SD = 0.30$). Although the adolescents' scores were more in the *Gesellschaft* direction than their mothers' ($M = 1.97$, $SD = 0.32$), the difference was not significant ($p = .14$). In terms of significance, the scores of the mothers and grandmothers showed no difference ($p = 1.00$). Thus, Hypothesis 2 concerning the intergenerational change in values in the *Gesellschaft* direction was partially confirmed.

In order to determine if mean difference might be explained by any of the sociodemographic characteristics, a bootstrapping mediation analysis with bias correction using 5000 bootstrap samples tested whether any or all sociodemographic variables that were correlated both with generation and the mean dilemma score variables mediated the relationship between generation and mean dilemma score. Table 4 shows the variables that were found to be correlated with either generation or dilemma score using Spearman's rank correlation suitable for the small sample. The mediation model included generation and all the socio—demographic variables correlated with both generation and mean dilemma score: mother's education, father's education, number of siblings, wearing a headscarf, and having personal mobile technology. Collinearity statistics indicated that there was not multicollinearity among the predictor variables with the VIF for each variable < 5 and the tolerance $> .02$. Table 5 shows the correlations among all of the sociodemographic variables that are related to either generation or dilemma score. Except for the correlation between mother's and father's education, none of the significant correlations are particularly strong. The general pattern of significant correlations among all the variables in the table does support the assumption about the characteristics of the sociodemographic ecologies. The regression, with generation as the independent variable and the socio—demographic variables as potential mediators, was significant ($F(5,54) = 6.80$, $p = .000$), explaining 39% of the variation in this model.

A bootstrapping mediation analysis with bias correction using 5000 bootstrap samples tested if personal mobile technology indeed mediated the relationship between

generation and mean dilemma score. As shown in Figure 2, although the total effect of generation on dilemma scores ($\beta = .15$, $t(54) = 2.96$, $p = .005$) – that is, generation's prediction of dilemma scores without controlling for the sociodemographic variables – is significant, the direct effect of generation ($\beta = .09$, $t(54) = 1.02$, $p = .31$) is not significant when adding personal mobile technology and the other non–significant predictors. This suggests the relationship between generation and dilemma score is fully mediated by personal mobile technology as the direct effect of generation on dilemma score became non–significant when controlling for personal mobile technology, and personal mobile technology continues to significantly predict mean dilemma score when controlling for the other variables ($\beta = .20$, $t(54) = 4.38$, $p = .000$). Whereas all of the other sociodemographic variables were predicted by generation, and earlier found to be related to mean dilemma score, when controlling for each of the other variables, none significantly predicted mean dilemma. To ascertain if personal mobile technology indeed is a significant mediator between generation and mean dilemma score, the 95% confidence interval of the indirect effects was obtained. The indirect effect (i.e., generation on dilemma score through the mediator of personal mobile technology) is significant ($\beta = .08$, CI = .02–.17) as indicated by the confidence interval (CI) that does not include 0. Thus, the reason that the mean scores tending more toward *Gesellschaft* increase from grandmotherhood to adolescence might be explained by greater ownership of personal mobile technology. The mediator of the intergenerational change is the same as the mediator of the difference between rural and urban high school girls and is in accord with Hypothesis 3.

Discussion

All three of our hypotheses were basically confirmed:

1. Urban adolescents endorsed significantly more Gesellschaft–adapted values than did rural adolescents. These data correspond to findings from two studies by Manago and Greenfield that used interviews to capture subjective experiences of Maya women undergoing the shift from *Gemeinschaft* to *Gesellschaft* environments: Maya women, both middle–aged and emerging adults, were aware that their move from village to city meant

that they could now have more equality with men in various ways and could select their own romantic partners based on attraction and compatibility (Manago, 2012; Manago & Greenfield, 2011). The emphasis on gender equality and personal choice reflect more Gesellschaft–adapted, individualistic values.

2. Each generation in the rural setting had more Gesellschaft–adapted values than the one before it. However, only the difference between the adolescent generation and the grandmother generation was statistically significant.

Using the same basic materials in a Zinacantec Maya community in Chiapas, Mexico, Manago (2014) found that each generation of three successive generations had significantly more *Gesellschaft*–adapted values. In the current study, the mothers are a transitional generation, connecting in their values to both their daughters and their mothers, not significantly different from either. However, it could be argued that, in Maya Chiapas, the social change was much greater across the generations, leading to statistically significant differences between each generation. A meaningful indicator of that situation is the fact that Zinacantec Maya grandmothers had no formal education whatsoever, the mothers averaged one year of formal education, and the daughters were attending high school. Hence the educational disparity among Zinacantec generations was much greater than in the present sample where 14 of the mothers had a high school education and one had a college education, while six of the grandmothers had an elementary education. Moreover, in the Zinacantec sample, involvement in a market economy became more common between the grandmother and mother generations, which appeared to drive value differences between these two generations.

Although the mothers in the Arab sample have considerably more education than the grandmothers, our sense is that what matters more is greater contact with the wider world, so that the village environment is a more significant influence than schooling. In the mothers' time in school, the village was even more isolated than today. After discussing Hypothesis 3, we will come back to further explanation of why, among Arabs in Israel, there was no significant difference between the mothers and the grandmothers.

3. Group differences were mediated by the socio–demographic environment, notably by ownership of personal mobile technology. We further hypothesize that this finding explains why there was no statistically significant difference between the mothers and the grandmothers: In Israel, the major driver of *Gesellschaft*–adapted values is the factor of communication technologies, and this is a social change that has occurred as early as adolescence only in the present generation. Indeed, in the mothers' youth, there was considerably less ownership of all communication technologies. This whole pattern of findings points to adolescence as a critical period for value change.

Among all of the sociodemographic variables that showed variation between the generations and between rural and urban adolescents, possession of personal mobile technology best predicted differences in the mean dilemma scores. Although according to Greenfield's theory of social change, increased possession of personal technology would be expected to go hand–in–hand with parents' education, ownership of household goods, and travel—indeed, this is shown in the correlation tables—we argue that it is the contact with the wider world that is afforded by personal mobile technology that makes a greater difference in the shift in values. Those with the means to have personal, flexible, even fleeting contact with the wider world, sociodemographic characteristics of a more *Gesellschaft* ecology, tended to express individualist and egalitarian values expected in a *Gesellschaft* ecology. As most of the parents in both the city and the village had at least a high school education, mobile technology appeared to be the more decisive factor than parental education in adolescents' exposure to and shift toward relatively more *Gesellschaft*–oriented values.

Limitation

Ideally, we would have had a multiple–generation urban sample for comparison with the three–generation rural sample. However, the urban environment makes recruiting such a sample virtually impossible because of dispersion of families in the city and urban life more generally. It seemed less necessary than the multiple–generation family in the rural environment, given evidence in other parts of the world that intergenerational shifts in

value—guided behavior is greater in rural than urban areas (Garcia, Rivera, & Greenfield, in prep).

Theoretical Implications

One interesting theoretical point is the tenet of Greenfield's (2009) theory that each sociodemographic factor is equipotential and that the factor that will best explain value shift will be that environmental element that is changing most rapidly at that particular moment. In Manago's (2014) intergenerational comparison utilizing a culturally equivalent set of scenarios, she was able to explain the more *Gesellschaft* perspective of the mothers compared to the grandmothers by the intergenerational ecological shift from subsistence and agriculture to money and commerce. In contrast, in her data, the explanatory factor for the more *Gesellschaft*—adapted perspective of the adolescent Maya girls was the experience of formal education. Like their mothers, they had grown up in a commercial economic environment; but, unlike their mothers, they were the first generation in their village to have the opportunity to attend high school. Our study in Israel showed basically the same intergenerational change in values as that demonstrated by Manago in Maya Chiapas. Yet we also found yet a third sociodemographic factor – communication technologies — to be responsible for the shift.

In this way, this new study further generalizes and confirms the equipotentiality of *Gesellschaft* elements to move development in a common direction, thus further strengthening in an important way the theory that stimulated the present research.

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Table 1

Spearman's rank correlations among the dilemmas

	1	2	3	4	5	6	7	8	9
1 — Men walk in front of women	—	.31**	.28*	.38**	.22*	.02	.10	.53***	.17
2 — Who cooks at home?	.25+	—	.10	.16	.28*	.20+	.23*	.10	.11
3 — Help with housework	.16	.00	—	−.12	−.07	−.03	.07	.38**	.29*
4 — Boys and girls talk	.17	.36*	−.02	—	.12	−.01	.26*	.07	.02
5 — Fiancés	−.06	−.18	.29*	−.10	—	.14	.16	−.07	.14
6 — Leave for the city	.06	−.04	−.10	.01	.30*	—	.21*	.05	.19+
7 — Professional woman	.15	.29*	.07	.19	.00	.15	—	−.03	.17
8 — Girl have fun with friends	.51***	.29*	.28*	.16	.02	.19	.07	—	.12
9 — Head scarf	.35*	.22+	.07	.14	−.02	.19	.23+	.30*	—

Note. Correlations below the diagonal are with the urban—rural adolescent sample. Correlations above the diagonal are with the generations in the village sample.

+ $p < .09$ * $p < .05$ ** $p < .01$ *** $p < .001$

Table 2

Socio-demographic characteristics found correlated with either group or mean dilemma scores.

Socio–demographic characteristics	Urban/Rural	Dilemma scores
Girl works in the home	−.23	−.37**
Girl works outside home	.46**	.30
Girl's mother works outside home	.52***	.29
Mother's education	.38*	.15
Father's education	.29	.04
Number of siblings	−.37*	−.21
Non–Muslim friends[a]	.82***	.28
Household goods[b]	.49**	.22
Travel outside Israel	.59***	.11
Has personal mobile technology[c]	.37*	.35**
Friends with boys on Facebook	.70***	.39*
Wears a headscarf	−.60***	−.28

Note: Correlations are rank correlations calculated with Spearman's rho. Rural = 1, Urban = 2.

[a] Jewish, Christian, or Druze

[b] sum of the following items at home: computers, televisions, and vehicles

[c] number of the following: personal laptop, personal cellphone, and internet on cellphone

* $p < .05$ ** $p < .01$ *** $p < .001$

Table 3

Correlations among sociodemographic variables in the adolescent samples

	1	2	3	4	5	6	7	8	9	10	11
1. Girl works in home	—										
2. Girl works outside home	−.20	—									
3. Mother works outside home	−.07	.35*	—								
4. Mother's education	−.09	.17	.12	—							
5. Father's education	−.07	.13	.01	.75***	—						
6. Number of siblings	.26	−.18	−.25	−.25	−.17	—					
7 Non−Muslim friends[a]	−.19	.38*	.49**	.15	.16	.28	—				
8. Household goods[b]	−.03	.10	.25	.25	.24	−.01	.39*	—			
9. Travel outside Israel	.09	.32*	.29+	.55***	.41**	−.29	.52**	.48**	—		
10. Mobile technology[c]	−.06	.17	.09	.31*	.33*	−.39*	.30*	.55***	.43**	—	
11. Boys friends on facebook	−.21	.28+	.56***	.11	.12	−.26	.80***	.44**	.45**	.33*	—
12. Wears headscarf	.21	.28+	−.66***	−.27	−.12	.25	−.49**	−.50**	−.34*	−.27	−.60***

Note: Correlations are rank correlations calculated with Spearman's rho.

[a] Jewish, Christian, or Druze

[b] sum of the following items at home: computers, televisions, and vehicles

[c] number of the following: personal laptop, personal cellphone, and internet on cellphone

+ $p < .075$ * $p < .05$ ** $p < .01$ *** $p < .001$

Table 4

Socio-demographic characteristics found correlated with either generation or mean dilemma scores.

Socio-demographic characteristics	Generation	Dilemma scores
Mother's education	−.77***	.28*
Father's education	−.78***	.34*
Number of siblings	.53**	−.31*
Non-Muslim friends[a]	−.30*	.25
Watches non-Arabic TV	−.48***	.24
Has personal mobile technology[b]	−.27*	.55***
Responds to 5 calls to prayer	.48***	−.13
Wears a headscarf	.37**	−.27*

Note: Correlations are rank correlations calculated with Spearman's rho. Daughter = Generation 1, mother = Generation 2, grandmother = Generation 3.

[a] Christian

[b] number of the following: laptop, cellphone, and internet on cellphone

* $p < .05$ ** $p < .01$ *** $p < .001$

Table 5

Correlations among sociodemographic characteristics in the village

	1	2	3	4	5	6	7
1. Mother's education	—						
2. Father's education	.67***	—					
3. Number of siblings	−.62***	−.39**	—				
4. Christian friends	.16	.26*	−.11	—			
5. Non–Arabic TV	.37**	.41**	−.21	.04	—		
6. Mobile technology[a]	.32*	.33**	−.18	.17	.25*	—	
7. Wears headscarf	−.36**	.26*	.33*	−.13	−.17	−.19	—
8. 5 calls to prayer	−.44***	−.36**	.35*	−.08	−.03	−.19	.43**

Note: Correlations are rank correlations calculated with Spearman's rho.

[a] number of the following: laptop, cellphone, and internet on cellphone

* $p < .05$ ** $p < .01$ *** $p < .001$